

**Remarks**

Claims 1-38 are pending in the application.

The drawings were objected to under 37 C.F.R. 1.84(p)(4).

The specification was objected to for incorporating essential subject matter by reference.

The specification was also objected to as because of several informalities.

Claims 5, 8, 25, and 34 were objected to because of various informalities.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-10, 15, 24, 25, 33, 37, and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent No. 6,483,866 issued to Suzuki on November 19, 2002.

Claims 11-14, 16-23, 26- 32, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in combination with one or more various additional references.

Each of the various rejections and objections are overcome by amendments that are made to the specification, drawing, and/or claims, as well as, or in the alternative, by various arguments that are presented.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly include the limitations of those claims on which it formerly depended or whether an independent claim has been rewriting to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

#### **Objection to the Drawing**

The drawings were objected to under 37 C.F.R. 1.84(p)(4), the Office Action stating that reference character 531 was used to designate both the transmitter and the receiver.

A new FIG. 5 is attached hereto in which an amendment is presented to correct this typographical error in accordance with the suggestion of the Office Action and thereby overcome this ground of objection.

#### **Objection to Claims**

Claims 5, 8, 25, and 34 were objected to because of various informalities. Applicants have amended these claims in as suggested by the Office Action to overcome the informalities.

**Rejection Under 35 U.S.C. 112, Second Paragraph**

Claims 1-5 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Office Action states that the expression "of a type" in claim 1 is unclear and indefinite. Applicants have removed the phrase "of a type" from the claim.

**Objections to the Specification**

The specification was objected to for incorporating essential subject matter by reference. Applicants believe the disclosure as originally filed was satisfactory in this regard. Nevertheless, to further prosecution, applicants have amended the specification of the instant application to recite verbatim the majority of the summary of co-pending application Serial No. 09/648,983. It is believed that the now-included section contains sufficient information to overcome this ground of objection, as it fully, but concisely, explains the principles of co-pending application Serial No. 09/648,983. If it is believed that additional portions of co-pending application Serial No. 09/648,983 need be incorporated in the instant application, it is requested that applicants' undersigned representative be contacted by telephone.

The specification was also objected to as because of several informalities.

Applicants have amended the specification in accordance with the suggestions of the Office Action to overcome the various informalities.

**Rejection Under 35 U.S.C. 102**

Claims 1-10, 15, 24, 25, 33, 37, and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent No. 6,483,866 issued to Suzuki on November 19, 2002.

This ground of rejection is respectfully traversed for the following reasons.

The Office Action states that elements RG1 and FR1 are a source of an orthogonal sequence which is repeatedly supplied as an output, as recited by applicants' claims, the orthogonal sequence having been developed as a function of first and second existing

orthogonal sequences and have a perfectly white spectrum should it be repeated an infinite number of times. However, this is incorrect.

First, signal T1 and T2 are derived from a single signal, D1, which is supplied from switching center 13 to signal transformation (ST) 14. ST 14 transforms D1 into two sequences T1 and T2, which are to be regarded as statistically independent signal sequences. Thus, Suzuki actually only suggests that the resulting sequences are pseudo-orthogonal, not actually orthogonal, as required by applicants' claims. (See Suzuki, column 3, lines 47-61, column 4, lines 1-6.) It seems that if Suzuki suggests that if one could create actually orthogonal signals that to do so would be advantageous, but Suzuki does not teach how that might be achieved.

Second, elements RG1 and FR1 act to combine T1 with training signal TRN1 to produce framed sequence F1, as shown in FIG. 4 of Suzuki. However, there is no suggestion in Suzuki about the orthogonality of TRN1 with respect to T1, with which it is combined. All that is suggested is that T1 is to be regarded as statistically independent with regard to T2, and likewise, TRN1 is to be regarded as statistically independent with regard to TRN2. So it cannot be assumed, contrary to the suggestion of the Office Action, that the combination of T1 and TRN1 results in an orthogonal sequence.

In other words, the Office Action cannot show that any sequence that is produced in Suzuki as the combination of two existing orthogonal sequences has a perfectly white spectrum should such a sequence be repeated an infinite number of times. At best the Office Action can show is that Suzuki teaches that a sequence can be produced that has substantially zero cross correlation with another other. However, it does **not** follow from the fact that such sequences may have substantially zero cross correlation with each other that any one of such sequences necessarily has a perfectly white spectrum should it be repeated an infinite number of times, as required by applicants' claims. This is because such sequence sets, e.g., T1 and T2 or TRN1 and TRN2 are only substantially orthogonal with respect to each other, but there is no teaching that each is orthogonal with respect to itself.

Thus, Suzuki fails to teach a source of an orthogonal sequence which is repeatedly supplied, the orthogonal sequence having been developed as a function of first and

second existing orthogonal sequences and being such that would it have a perfectly white spectrum were it to be repeated an infinite number of times, as required by applicants' independent claims 1, 6, 15, 18, 24, 25, 34, and 37.

Similarly, applicants' claims 10, 29, and 33 each requires that there is no channel filtering performed between the demodulator and the FIR filter implementing a least squares algorithm. Such filtering is implicitly required, even if not shown in a transmitter, when sequences that do not have a perfectly white spectrum should they be repeated an infinite number of times are employed. Furthermore, in Suzuki there is no teaching of an FIR filter implementing a least squares algorithm. Thus, Suzuki does not teach or suggest all of the elements of applicants' independent claims 10, 29, and 33.

Thus, all of applicants' independent claims are allowable over Suzuki under 35 U.S.C. 102. Since all of the dependent claims that depend from the allowable independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Suzuki under 35 U.S.C. 102.

**Rejection Under 35 U.S.C. 103(a)**

Claims 11-14, 16-23, 26-32, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in combination with one or more various additional references. However, each of the grounds of rejection is predicated on the validity of the rejection under 35 U.S.C. 102 given Suzuki. Since the rejection under 35 U.S.C. 102 given Suzuki has been traversed, as described hereinabove, and there is no argument put forth by the Office Action that any of the additional references supplies that which is missing from Suzuki, to render the independent claims anticipated, these grounds of rejection cannot be maintained.

Therefore, applicants' claims are allowable under 35 U.S.C. 103(a).

**Conclusion**

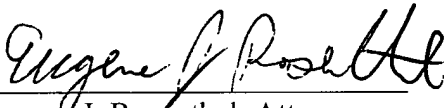
It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, he is invited to call applicant's attorney so that arrangements may be made to discuss and resolve any such issues.

In the event that an extension of time is required for this amendment to be considered timely, and a petition therefor does not otherwise accompany this amendment, any necessary extension of time is hereby petitioned for, and the Commissioner is authorized to charge the appropriate cost of such petition to the **Lucent Technologies Deposit Account No. 12-2325**.

Respectfully,

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